

SIPLUS ET 200SP, (-40) -25...+60 °C with conformal coating based on 6ES7134-6HB00-0DA1 . Analog input module, AI 2x U/I 2-, 4-wire high Speed, suitable for BU type A0, A1, Color code CC00, channel diagnostics, 16 bit, +/-0.3%



General information	
Product type designation	230 RCE
Firmware version	V2.0
<ul style="list-style-type: none"> <li>FW update possible</li> </ul>	Yes
usable BaseUnits	BU type A0, A1
Color code for module-specific color identification plate	CC00
Product function	
<ul style="list-style-type: none"> <li>I&amp;M data</li> </ul>	Yes; I&M0 to I&M3
<ul style="list-style-type: none"> <li>Measuring range scalable</li> </ul>	No
Engineering with	
<ul style="list-style-type: none"> <li>PROFIBUS as of GSD version/GSD revision</li> </ul>	GSD Revision 5
<ul style="list-style-type: none"> <li>PROFINET as of GSD version/GSD revision</li> </ul>	GSDML V2.3
Operating mode	
<ul style="list-style-type: none"> <li>Oversampling</li> </ul>	Yes; 2 channels per module
<ul style="list-style-type: none"> <li>MSI</li> </ul>	No
CiR – Configuration in RUN	
Reparameterization possible in RUN	Yes

Calibration possible in RUN	No
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### Supply voltage

permissible range, lower limit (DC)	100 V
permissible range, upper limit (DC)	253 V
Reverse polarity protection	Yes

### Input current

Current consumption (rated value)	39 mA; without sensor supply
Current consumption, max.	40 mA

### Encoder supply

24 V encoder supply	
• 24 V	Yes
• Short-circuit protection	Yes
• Output current, max.	20 mA; max. 50 mA per channel for a duration < 10 s

### Address area

Address space per module	
• Address space per module, max.	4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)

### Analog inputs

Number of analog inputs	0
permissible input voltage for voltage input (destruction limit), max.	30 V
permissible input current for current input (destruction limit), max.	50 mA
Cycle time (all channels), min.	125 $\mu$ s
Analog input with oversampling	
• Values per cycle, max.	16
• Resolution, min.	50 $\mu$ s

### Input ranges (rated values), voltages

• 0 to +10 V	Yes; 15 bit
• Input resistance (0 to 10 V)	75 k $\Omega$
• 1 V to 5 V	Yes; 13 bit
• Input resistance (1 V to 5 V)	75 k $\Omega$
• -10 V to +10 V	Yes; 16 bit incl. sign
• Input resistance (-10 V to +10 V)	75 k $\Omega$
• -5 V to +5 V	Yes; 15 bit incl. sign
• Input resistance (-5 V to +5 V)	75 k $\Omega$

### Input ranges (rated values), currents

• 0 to 20 mA	Yes; 15 bit
• Input resistance (0 to 20 mA)	130 $\Omega$
• -20 mA to +20 mA	Yes; 16 bit incl. sign
• Input resistance (-20 mA to +20 mA)	130 $\Omega$

• 4 mA to 20 mA	Yes; 14 bit
• Input resistance (4 mA to 20 mA)	130 Ω
<b>Cable length</b>	
• shielded, max.	1 000 m; 200 m for voltage measurement
<b>Analog value generation for the inputs</b>	
Measurement principle	Actual value encryption (successive approximation)
<b>Integration and conversion time/resolution per channel</b>	
• Resolution with overrange (bit including sign), max.	16 bit
• Interference voltage suppression for interference frequency f1 in Hz	No
• Conversion time (per channel)	10 μs
<b>Smoothing of measured values</b>	
• Number of smoothing levels	7; none; 2-/4-/8-/16-/32-/64-fold
• parameterizable	Yes
<b>Encoder</b>	
<b>Connection of signal encoders</b>	
• for voltage measurement	Yes
• for current measurement as 2-wire transducer — Burden of 2-wire transmitter, max.	Yes 650 Ω
• for current measurement as 4-wire transducer	Yes
<b>Errors/accuracies</b>	
Linearity error (relative to input range), (+/-)	0.03 %
Temperature error (relative to input range), (+/-)	0.01 %/K
Crosstalk between the inputs, min.	-50 dB
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	0.1 %
<b>Operational error limit in overall temperature range</b>	
• Voltage, relative to input range, (+/-)	0.5 %
• Current, relative to input range, (+/-)	0.5 %
<b>Basic error limit (operational limit at 25 °C)</b>	
• Voltage, relative to input range, (+/-)	0.2 %
• Current, relative to input range, (+/-)	0.2 %
<b>Interference voltage suppression for <math>f = n \times (f1 \pm 1 \%)</math>, f1 = interference frequency</b>	
• Common mode voltage, max.	35 V
• Common mode interference, min.	90 dB
<b>Isochronous mode</b>	
Isochronous operation (application synchronized up to terminal)	Yes
Filtering and processing time (TCI), min.	80 μs
Bus cycle time (TDP), min.	125 μs

## Interrupts/diagnostics/status information

Alarms	
• Diagnostic alarm	Yes
• Limit value alarm	Yes; two upper and two lower limit values in each case
Diagnostic messages	
• Wire-break	Yes; channel-by-channel, at 4 to 20 mA only
• Short-circuit	Yes; channel-by-channel, at 1 to 5 V or for current measuring ranges short-circuit in encoder supply
• Group error	Yes
• Overflow/underflow	Yes
Diagnostics indication LED	
• Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED
• Channel status display	Yes; Green LED
• for channel diagnostics	Yes; Red LED
• for module diagnostics	Yes; green/red DIAG LED

## Potential separation

Potential separation channels	
• between the channels	Yes
• between the channels and backplane bus	Yes
• between the channels and the power supply of the electronics	Yes

## Permissible potential difference

between different circuits	75 V DC/60 V AC (base isolation)
between the inputs (UCM)	75 V DC/60 V AC

## Isolation

Isolation tested with	707 V DC (type test)
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## Ambient conditions

Ambient temperature during operation	
• horizontal installation, min.	-40 °C; = Tmin; Startup @ -25 °C
• horizontal installation, max.	60 °C; = Tmax
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	3 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... Tmax -5K) at 795 hPa ... 701 hPa (+2 000 m ... +3 000 m)
Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation
Resistance	
Coolants and lubricants	
— Resistant to commercially available coolants and lubricants	Yes; Incl. diesel and oil droplets in the air

<b>Use in stationary industrial systems</b>	
— to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
— to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
<b>Use on ships/at sea</b>	
— to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
— to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
<b>from supply voltage 1L+</b>	
— Note regarding classification of environmental conditions acc. to EN 60721	* The supplied plug covers must remain in place over the unused interfaces during operation!

<b>Dimensions</b>	
Width	71.5 mm
Height	90 mm
Depth	60 mm

<b>Weights</b>	
Weight, approx.	32 g
<b>last modified:</b>	05/15/2018